REMARKS

The present application contains claims 1-29.

Claims 1, 7, 13, 18, and 23 have been amended to include the element 'path optimization and modification' in the preamble of the claims. Support for the amendments can be found, for example, on page 2, lines 21-30, and throughout the disclosure as originally filed.

Claims 1, 7, 13, 18, and 23 have been amended to include the element "said current path being in a non-failure state [...]". Support for the amendments can be found, for example, on page 3, lines 1-7; page 4, lines 3-12; and throughout the disclosure as originally filed.

The step 'supplementing the resources ... while computing an alternate communication path' in claim 1 has been amended as two separate steps of supplementing and computing. Support for this amendment can be found, for example, on page 9, line 28 to page 10, line 2, in Figures 3 and 4 and throughout the specification. Claim 1 has further been amended to include a), b) and c) before the steps of the claimed method.

The Examiner rejected claims 1-3, 5-6, 13-15, 17, 23, 26-27 and 29 under 35 U.S.C. 102 (c) as being anticipated by Saleh (US Publication No. 2001/0033548), hereinafter referred to as Saleh.

Applicant respectfully requests reconsideration and withdrawal of this objection in view of the amendments made herein and the following comments.

One aspect of the present invention, as claimed by the amended claims, teaches a method for path optimization and modification in connection-oriented packet-switching network, comprising the steps of: receiving a request for selecting an alternate communications path, the request containing information regarding the network resources used by a current communications path, said current

communications path being in a non-failure state, and transmitting data packets; supplementing the resources available in said network with said network resources used by said current communications path; and computing the alternate communications path.

There are several elements in the invention, as claimed by the amended claims:

1) 'communication path' as stated on page 7, starting line 27:
   [...] a link is the physical connection between two nodes. [...] A communication path is a connection between a source and a destination node;
2) 'communication path [...] transmitting data packets': a communication path transmitting data packets means that the packets are transmitted from source node to destination node. It should be apparent to a person skilled in the art that it is quite different from a transmitter at a source node transmitting data packets, which does not guarantee the arrival of the data packets at the destination node;
3) 'current communication path': the claim as originally filed recites the expression 'current communication path', it should be apparent from the specification that this means a communication path which carries or transmits the traffic, for example, on page 4, starting line 8, it is stated:
   [...] to establish the alternate path, switch traffic from the current communication path to the alternate path and terminate the original current path and leaving the alternate path as the new current path.
4) 'non-failure state' of the current communication path: to emphasis the alternate communication path is calculated through 'make-before-break' technique, the claims have been amended to recite '[...]said current communications path being in a non-failure state [...]'
5) 'supplementing the resources available in said network with said network resources used by said current communications path': another characteristic of the invention is that the resource used by the current communications path is considered during the calculation.

Saleh teaches a method for restore a virtual path in a mesh optical network in response to a failure (page 3, section 0028). Section 132 on page 11 states: 'FIG. 9 illustrates the steps performed in response to the failure of a link. ... If the VP does not use the failed link, the node goes to the next VP in the table and begins analyzing that entry (step 930). If the selected VP uses the failed link, the node releases all link bandwidth allocated to

that VP (step 940).' Section 134 on page 11 further indicates: 'For each VP on the list, the node then sends an RPR to all eligible neighbors in order to restore the given VP.'

It should be apparent to a person skilled in the art that Saleh teaches a method to calculate an alternate in response to a link failure, without a link failure the method stays at step 900 in Figure 9. For communication paths (or VPs) passing through this failed link, they are no longer transmitting or carrying the traffic (data packet for instant application and SONET traffic for Saleh), regardless the transmitter at the source of the communication path is transmitting or not.

Furthermore, although Saleh states that the node releases all link bandwidth allocated to the VP affected by the link failure, it should be apparent to a person skilled in the art that the resources associated with the failed link will not be included in the VP restoration process as outlined in Figure 9. More specifically, the nodes at both ends of a failed link will no longer have a neighboring relationship, resulting in a different execution of route selection as outlined in Figure 15.

Therefore, Applicant submits that Saleh does not teach path modification and path optimization by computing an alternating communication path while the current communication path is in a non-failure state, and transmits data packets as claimed by the amended claims 1, 13, and 23.

Applicant therefore submits that claims 1, 13, and 23 are novel in view of Saleh. Applicant further submits that dependent claims 2 - 3, 5 - 6, 14 -15, 17, 26 - 27 and 29 inherit the features of the independent claims 1, 13, and 23 and therefore are novel in light of the amended independent claims.

The Examiner further rejected claims 7-10, 12, 18-20, 22, and 24-25 under 35 U.S.C. 103(a) as being unpatentable over Saleh and in view of Bader (US Patent No. 6,112,249), hereinafter referred as Bader.

Applicant respectfully requests reconsideration and withdrawal of this rejection in view of the amendments made herein and the following comments.

Another aspect of the present invention teaches a mechanism for route selection in connection-oriented packet-switching networks in which data packets are transmitted on a current communications path. The route selection in present invention considers all links in the current communication path while computing an alternate communication path. Prior to the computing of the alternate communication path, it may be advantageous to remove the network resource reservation used by the current communications path, and restore them after the computing. The removal, computing and restoring steps are advantageously performed in an atomic step. The removal of the resources used by the current communication path results in an alternate communication path that does not share removed resources. The last step of the claimed method is to restore the network topology database. The claimed subject matter is directed to path optimization and modification by computing an alternate communication path while the current communication path transmits the traffic, or 'make-before-break'.

As stated above, Applicant submits that Saleh does not teach path modification and path optimization by computing an alternating communication path while the current communication path is in non-failure state and transmits data packets as claimed by the amended claims 7, 18, and 23.

Bader teaches the restoration of network primary path upon failure. It is clear from the decisions illustrated in Fig.2 that after the primary path failure (Ref. 22, Fig. 2) that the method can only proceed if the primary path becomes available (Ref. 12 in Fig 2, and Ref. 30 in Fig. 3). Therefore, Bader teaches only the restoration of the database upon restoration of the primary path failure. Bader does not teach removing the resources for the current communication path from the database for computing an alternate communication path. Ref. 12 in Fig 2, and Ref 30 in Fig. 3 are decision steps in the process for restoring primary path to ensure the primary path becomes active again, it is not an atomic transaction to remove the resources for the current communication path, to compute an alternate path and to restore the removed resources to the database.

Applicant submits that one skilled in the art, in the light of the state of the art as described in Saleh and Bader, would not have the motivation to modify or optimize a current communication path, while the communication path is in a non-failure state and to transmit the data packets, by removing the resources for the current communication

path from a topology database, computing an alternate communication path and to restore the resources to the topology database. In other words, both Saleh and Bader teach methods in response to a network failure, while the instant application describes a method for path optimization and modification by computing an alternate communication path through 'make-before-break' approach.

Therefore, it is respectfully submitted that claims 7, 18, and 23 and their dependent claims 8-10, 12, 19-20, 22, and 24-25 are patentably inventive in view of Saleh and Bader.

The Examiner further rejected claims 4, 11, 16, 21, and 28 under 35 U.S.C. 103(a) as being unpatentable over Saleh and Bader and in view of Fedyk et al. (US Patent No. 5,848,055), hereinafter referred as Fedyk.

As stated above, Applicant submits that one skilled in the art, in the light of the state of the art as described in Saleh and Bader, which teaches the restoration of a network failure, would not have the motivation to modify or optimize a current communication path, while the communication path is in non-failure state and transmits the data packets, by removing the resources for the current communication path from a topology database, computing an alternate communication path and restoring the resources to the topology database. In other words, both Saleh and Bader teach method in response to a network failure, while the instant application describes a method for path optimization and modification by computing an alternate communication path through 'make-before-break' approach. Therefore, a person skilled in the art will not have the motivation to combine Fedyk with Saleh and Bader. Furthermore, Applicant submits that allocating a bandwidth greater than the required current bandwidth will not reduce the delay in the network path.

Applicant therefore submits that the subject matters of new claims 1-29 are new and unobvious in view of the cited references.